HAWAII ADMINISTRATIVE RULES

TITLE 12 DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS

SUBTITLE 8

DIVISION OF OCCUPATIONAL SAFETY AND HEALTH

CHAPTER 237

INCLINED WHEELCHAIR LIFTS

§12-237-1 Definition. As used in this chapter:

"Inclined wheelchair lift" means a power passenger lift used to raise and lower a person in a wheelchair or a person of limited mobility in or on a car or platform on an incline from one level to another. [Eff. 12/19/83; am and comp 12/6/90] (Auth: HRS §397-4) (Imp: HRS §397-4)

§12-237-2 General. (a) If an inclined wheelchair lift is installed other than on a stairway:

(1) The top entrance shall be guarded at the upper level by a door or gate at least 42 inches (105 cm) high of unperforated construction and provided with a combination mechanical lock and electrical contact. The door may be opened only if the platform is within 2 inches (5 cm) of that level. The door at the upper access landing shall be located not more than 3 inches (7.5 cm) from the platform sill; and

(2) A 42-inch (105 cm) high guard of smooth construction shall be provided on each side of the runway.

(b) Car clearances between platform and runway enclosures or obstructions shall be not less than 3/4 (1.9 cm) inch.

(c) If installed on a stairway that is a required means of egress, the equipment shall be so constructed as to permit free passage on the stairway and the free passage area shall not be less than is required for egress from the building. When installed on a stairway that is accessible to the public, the lift runway shall be separated from the pedestrian passageway by a smooth surfaced partition 42 inches (105 cm) in height and capped by a handrail.

(d) Pits are not required, but is furnished in an area accessible to the public, a pit or floor ramp shall be provided. The lower terminal shall be provided with a self-closing door at least 42 inches (105 cm) high on the side accessible to foot traffic. The door shall be of solid construction and

provided with a combination mechanical lock and electric contact and shall only be operable when the platform is within 2 inches (5 cm) of the lower landing. It may permit the platform to move if the door is in the closed position, but not locked, provided the device will stop the platform if the door fails to lock before the platform has moved more than 2 inches (5 cm) away from the landing.

(e) If a pit is not provided, a ramp shall be provided. The ramp shall be mounted on the lower landing. If installed at a private residence, a pit, a floor mounted ramp, or a retractable platform mounted ramp shall be provided. A door at the lower landing is not required.

(f) All ramps shall have an angle of incline not greater than 1 inch (2.5 cm) in 12 inches (30 cm).

(g) Pipes conveying steam, gas, or liquid which, if discharged into the runway of the platform would endanger life or health, shall not be permitted. [Eff. 12/19/83; am and comp 12/6/90] (Auth: HRS §397-4) (Imp: HRS §397-4)

§12-237-3 Car construction. (a) The car or platform frame shall be of metal construction and have a safety factor of not less than 5 based on rated load. The platform shall be of metal or wood construction with a non-skid surface.

(b) Metals having an elongation of less than 20 per cent in a length of 2 inches (5 cm) shall not be used in the construction of any member of the car frame or platform.

(c) The net platform area shall not exceed 12 square feet (3.6 m^2).

(d) The platform shall be securely anchored to a truck which supports it. The truck shall be retained in a track or on a guide-rail assembly.

(e) The supporting tracks or guide rails shall be securely anchored to the stairs or side wall.

(f) The safety factor used in the design of the carriage, truck, tracks, guide rails, sprockets, and sheaves shall be not less than 5, based on the rated load.

(g) The platform, in areas accessible to the public, shall be equipped with a self-closing door at least 42 inches (105 cm) high on the sides of access to the lower landing. The door shall be of solid construction and provided with a combination mechanical lock and electrical contact and shall only be operable within 2 inches (5 cm) of the lower landing. It may permit the platform to move if the door or gate is in the closed position, but not locked, provided the device will stop the platform if the door or gate fails to lock before the platform has moved more than 2 inches (5 cm) away from the landing.

(h) The platform side guards on the sides not used for access or exit, in areas accessible to the public, shall be of smooth construction with no openings, other than those necessary for operation, to a height of 42 inches (105 cm) above the platform or car floor. These openings, necessary for operation, shall reject a ball 1/2 inch (1.2 cm) in diameter. A grab rail extending the full length of the side guards shall be provided at a height of 36 inches (90 cm). The running clearance between the side guards and the enclosures shall be not less than 2 inches (5 cm) nor more than 3 inches (7.5 cm). [Eff. 12/19/83; am and comp 12/6/90] (Auth: HRS §397-4) (Imp: HRS §397-4)

§12-237-4 Obstruction safeties. (a) The entire underside and the leading edge of the platform shall be equipped with a device which, if the platform is obstructed in its travel in either direction by a force not to exceed 4 pounds (1.8 kg), will stop the platform travel within a distance not to exceed 2 inches (5 cm).

(b) All platforms shall be provided with a safety. The safety shall be of the inertia or another approved type operated by the breakage or slackening of the suspension means or by the action of a speed governor. If of the speed governor type, the governor shall operate the safety at a maximum speed of 75 feet (22.7 m) per minute. On the breakage of the suspension means, the safety shall operate without delay and independently of the speed governor action. A slack rope or chain switch shall be provided which will remove the power from the motor and brake if the hoisting rope or chain fails or slackens. [Eff. 12/19/83; am and comp 12/6/90] (Auth: HRS §397-4) (Imp: HRS §397-4)

§12-237-5 Guide rail. (a) Platform guide rails shall be of metal construction.

(b) The top and bottom ends of each run of guide rails shall be so located in relation to the extreme positions of travel of the platform that the platform guiding members cannot travel beyond the ends of the guide rails.

(c) Driving machines and sheaves.

(1) Winding drums, traction sheaves, and overhead and deflecting sheaves shall be of cast iron or steel, or a diameter not less than 30 times the diameter of the hoisting ropes. The rope grooves shall be machined. Where 8 x 19 steel rope or 7 x 19 aircraft cable is used, the diameter of drums and sheaves may be reduced to 21 times the diameter of the rope.

(2) The safety factor, based on the static load (the rated load plus the weight of the car, ropes, counterweights, etc.) to be used in the design of driving machines and sheaves, shall be not less than 8 for wrought iron and steel and not less than 10 for cast iron, cast steel, and other materials.

(3) Set-screw fastenings shall not be used in lieu of keys or pins if the connection is subject to torque or tension.

(4) Friction gearing, clutch mechanisms, or couplings shall not be used in connecting the drum or sheaves to the main driving gear.

(5) Gearing having cast iron teeth shall not be used.

(d) The driving means may be a winding drum, chain drive, screw drive, rack and pinion drive, direct plunger hydraulic, or roped hydraulic.

(e) Driving machine chains and sprockets shall be of steel and shall conform in all particulars to ANSI B29.1. If two or more chains are used as the suspension means and a worn chain or sprocket is replaced, all chains and sprockets shall be replaced.

(f) The power unit may be mounted on the carriage or placed at a remote location. If remotely located, all intervening sheaves or sprockets shall be placed so that the rope or chain travels in the proper alignment. All sheaves and sprockets shall be enclosed or guarded.

(g) Driving machines shall be equipped with electrically released, spring-applied brakes. A single ground or short circuit, a counter-voltage, or a motor-field discharge shall not prevent the brake magnet from allowing

the brake to set when the operating device is placed in the stop position. If a self-locking drive utilizes a lead screw or other positive gearing which will stop and hold the carriage with the rated load within 4 inches (10 cm) of down travel after the power is removed, a machine brake shall not be required. [Eff. 12/19/83; am and comp 12/6/90] (Auth: HRS §397-4) (Imp: HRS §397-4)

§12-237-6 Terminal stopping devices. (a) If an instantaneously reversible motor is not used, a protective circuit or device shall be provided to prevent the motor from continuing in the same direction if the reversing control is actuated.

(b) Operation of the chair from the upper or lower landings and the chair shall be controlled by a key. The key-operated control shall be operated by a lock having 5 pins with the key removable only from the "off" position. A key switch shall be provided at each station which will allow a control switch at that station to become effective only when the key is in the "on" position. "Up" and "down" control switches at all stations shall be by means of a constant pressure device.

(c) Electrical wiring and electrical equipment shall conform to the requirements of NFPA 70.

(d) If an inclined wheelchair lift is installed in an area not visible to personnel at all times, an emergency signal shall be installed. The emergency signal shall consist of a telephone connected to a central telephone exchange and an audible signal operated from the platform shall be provided. [Eff. 12/19/83; comp 12/6/90; am 7/6/98] (Auth: HRS §397-4) (Imp: HRS §397-4)

§12-237-7 Capacity and rated load. (a) The capacity shall be one person. The rated load shall not exceed 450 pounds (204.5 kg).

(b) The rated speed measured along the incline shall not exceed 40 feet (12.1 m) per minute.

(c) In no case shall the lift provide transportation between more than two consecutive floors. Travel shall be limited to 35 feet (10.6 m) measured on the incline. No lift shall be installed or operated on a greater incline than 45 degrees as measured on the mean.

(d) A capacity plate shall be furnished by the manufacturer and placed at a conspicuous place on the device stating the rated load in pounds. Letters and numbers used shall be not less than 1/4 inch (0.6 cm) in height.

(e) A data plate provided by the manufacturer shall be fastened in a conspicuous place stating the speed, suspension means, manufacturer's name, and date of manufacture. The letters and numbers used shall not be less than 1/4 inch (0.6 cm) in height. [Eff. 12/19/83; am and comp 12/6/90] (Auth: HRS §397-4) (Imp: HRS §397-4)

§12-237-8 Suspension means. (a) Suspension means shall be steel or iron elevator wire rope, steel aircraft cable, roller chain, direct plunger hydraulic, rack and pinion, or screw drive.

(b) Steel tapes or welded link chains shall not be used as suspension means.

(c) The suspension means shall have a safety factor of not less than 7 based on the tension in the rope, cable, chain, or forces exerted on the hydraulic cylinder, screw driver, or rack and pinion when raising the rated load. When the car and counterweight are suspended by steel ropes and the

driving means between the machine and the counterweight is an endless roller type chain, the safety factor of the chain with rated load on the platform shall not be less than 8.

(d) The arc of contact of a wire rope on a traction sheave shall be sufficient to produce adequate traction under all load conditions. The arc of contact of a chain with a driving sprocket shall be not less than 140 degrees.

(e) All wire ropes anchored to a winding drum shall have not less than one full turn of rope on the drum when the car or counterweight has reached its limit of possible overtravel.

(f) No suspension wire rope shall be lengthened or repaired by splicing. Broken or worn suspension shall not be repaired. If one wire rope or chain of a set is worn or damaged and requires replacement, the entire set of ropes or chains shall be replaced. If a chain is replaced due to wear, all sprockets shall be replaced.

(g) The platform ends of wire ropes shall be fastened by return loop, by properly made individual tapered babbitted sockets, or by properly attached fittings as recommended by wire rope manufacturers. Clamps of the U-bolt type shall not be used. The diameter of the hole in the small end of the socket shall not exceed the normal diameter of the rope by more than 3/32 inch (2.3 mm).

(h) All suspension means shall be guarded against accidental contact. Suspension means which operate within a guide or track and travel at the same speed and in the same direction as the car or platform shall be considered suitably guarded. [Eff. 12/19/83; am and comp 12/6/90] (Auth: HRS §397-4) (Imp: HRS §397-4)